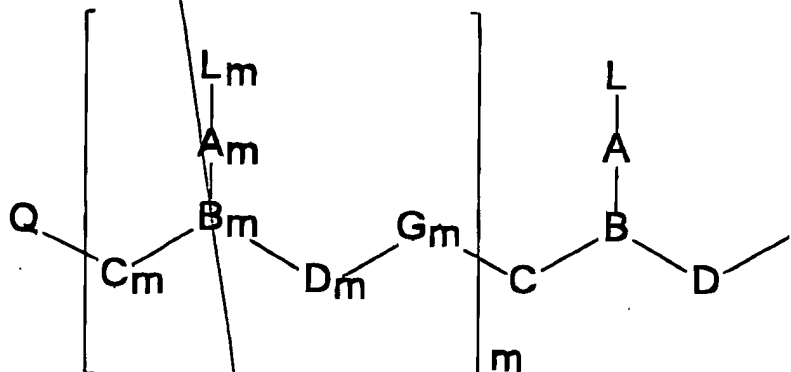


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Please rewrite claims 7 and 21 as new claims 37 and 38, respectively, as indicated below:

--37. A peptide nucleic acid conjugate of the formula:



wherein:

$m$  is an integer from 1 to about 50;

$L$  and  $L_m$  independently are  $R^{12}(R^{13})_a$  wherein:

$R^{12}$  is hydrogen, hydroxy,  $(C_1-C_4)$ alkanoyl, a naturally occurring nucleobase, a non-naturally occurring nucleobase, an aromatic moiety, a DNA intercalator, a nucleobase-binding group, a heterocyclic moiety, a reporter ligand, or a conjugate;

provided that at least one of  $R^{12}$  is a naturally occurring nucleobase, a non-naturally occurring nucleobase, a DNA intercalator, or a nucleobase-binding group;

$R^{13}$  is a conjugate; and

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a is 0 or 1;

C and C<sub>m</sub> independently are (CR<sup>6</sup>R<sup>7</sup>)<sub>y</sub>; wherein:

R<sup>6</sup> and R<sup>7</sup> independently are hydrogen, a side chain of a naturally occurring alpha amino acid, (C<sub>2</sub>-C<sub>6</sub>) alkyl, aryl, aralkyl, heteroaryl, hydroxy, (C<sub>1</sub>-C<sub>6</sub>) alkoxy, (C<sub>1</sub>-C<sub>6</sub>) alkylthio, a conjugate, NR<sup>3</sup>R<sup>4</sup>, SR<sup>5</sup> or R<sup>6</sup> and R<sup>7</sup> taken together complete an alicyclic or heterocyclic system;

wherein R<sup>5</sup> is hydrogen, a conjugate, (C<sub>1</sub>-C<sub>6</sub>)alkyl, hydroxy-, alkoxy-, or alkylthio-substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl; and

R<sup>3</sup> and R<sup>4</sup> independently are hydrogen, a conjugate, (C<sub>1</sub>-C<sub>4</sub>)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C<sub>1</sub>-C<sub>4</sub>)alkyl, hydroxy, alkoxy, alkylthio or amino;

D and D<sub>m</sub> independently are (CR<sup>6</sup>R<sup>7</sup>)<sub>z</sub>;

each of y and z is zero or an integer from 1 to 10, wherein the sum y + z is greater than 2 but not more than 10;

G<sub>m</sub> is independently -NR<sup>3</sup>CO-, -NR<sup>3</sup>CS-, -NR<sup>3</sup>SO-, or -NR<sup>3</sup>SO<sub>2</sub>- in either orientation;

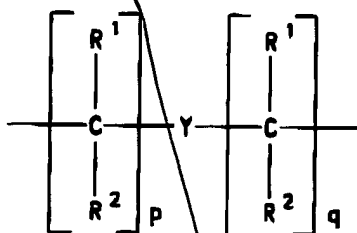
each pair of A-A<sub>m</sub> and B-B<sub>m</sub> are selected such that:

(a) A or A<sub>m</sub> is a group of formula (IIa), (IIb) or (IIc) and B or B<sub>m</sub> is N or R<sup>3</sup>N<sup>+</sup>; or

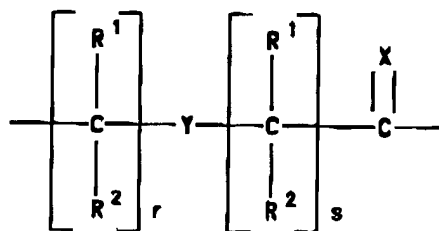
(b) A or A<sub>m</sub> is a group of formula (IIId) and B or B<sub>m</sub> is CH;

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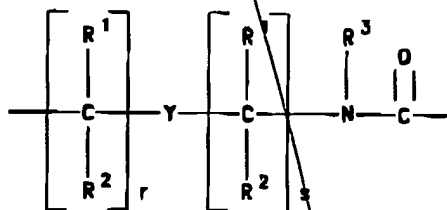
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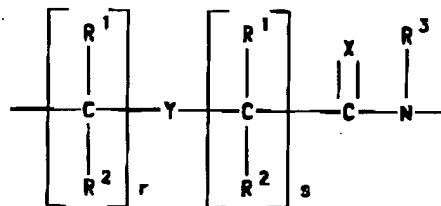
IIa



IIb



IIc



IIId

wherein:

X is O, S, Se, NR<sup>3</sup>, CH<sub>2</sub> or C(CH<sub>3</sub>)<sub>2</sub>;Y is a single bond, O, S or NR<sup>4</sup>;

each of p and q is zero or an integer from 1 to 5;

each of r and s is zero or an integer from 1 to 5;

R<sup>1</sup> and R<sup>2</sup> independently are hydrogen, (C<sub>1</sub>-C<sub>4</sub>)alkyl, hydroxy-substituted (C<sub>1</sub>-C<sub>4</sub>)alkyl, alkoxy-substituted (C<sub>1</sub>-C<sub>4</sub>)alkyl, alkylthio-substituted (C<sub>1</sub>-C<sub>4</sub>)alkyl, hydroxy, alkoxy, alkylthio, amino, halogen or a conjugate;

I is -NR<sup>8</sup>R<sup>9</sup> or -NR<sup>10</sup>C(O)R<sup>11</sup>; wherein:

R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup> and R<sup>11</sup> independently are hydrogen, alkyl, an amino protecting group, a reporter ligand, an intercalator, a chelator, a peptide, a protein, a carbohydrate, a lipid, a steroid, a nucleoside, a nucleotide, a nucleotide diphosphate, a nucleotide

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triphosphate, an oligonucleotide, an oligonucleoside, a soluble polymer, a non-soluble polymer or a conjugate;

Q is  $-\text{CO}_2\text{H}$ ,  $-\text{CO}_2\text{R}^8$ ,  $-\text{CO}_2\text{R}^9$ ,  $-\text{CONR}^8\text{R}^9$ ,  $-\text{SO}_3\text{H}$ ,  $-\text{SO}_2\text{NR}^{10}\text{R}^{11}$  or an activated derivative of  $-\text{CO}_2\text{H}$  or  $-\text{SO}_3\text{H}$ ; and

wherein:

at least one of Q and I comprises a conjugate selected from a terpene, a cell receptor binding molecule, a crosslinking agent, a water soluble vitamin, a lipid soluble vitamin, a porphyrin, or an alkylator; or

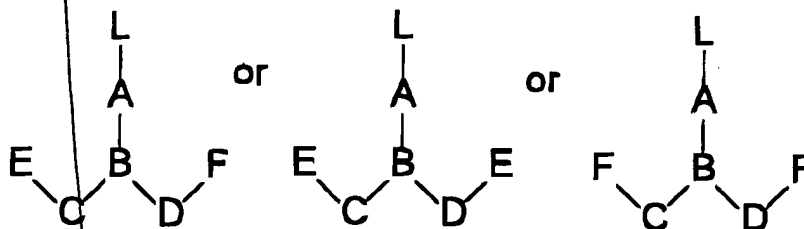
at least one of A,  $A_m$ , L, and  $L_m$  comprises a conjugate selected from a reporter enzyme, a reporter molecule, a steroid, a carbohydrate, a terpene, a peptide, a protein, a phospholipid, a cell receptor binding molecule, a crosslinking agent, a water soluble vitamin, a lipid soluble vitamin, an RNA/DNA cleaving complex, a metal chelator, a porphyrin, an alkylator, or a polymeric compound selected from polymeric amines, polymeric glycols and polyethers;

wherein said conjugate optionally includes a linking moiety.

38. A compound having one of the following formulas:

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wherein:

L is  $R^{12}(R^{13})_a$ ; wherein:

$R^{12}$  is hydrogen, hydroxy,  $(C_1-C_4)$ alkanoyl, a naturally occurring nucleobase, a non-naturally occurring nucleobase, an aromatic moiety, a DNA intercalator, a nucleobase-binding group, a heterocyclic moiety, a reporter ligand, or a conjugate and at least one of  $R^{12}$  is a naturally occurring nucleobase, a non-naturally occurring nucleobase, a DNA intercalator, or a nucleobase-binding group;

$R^{13}$  is a conjugate; and

$a$  is 0 or 1;

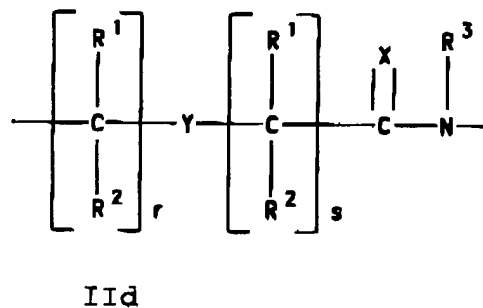
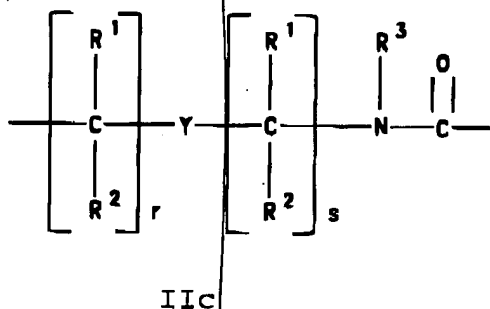
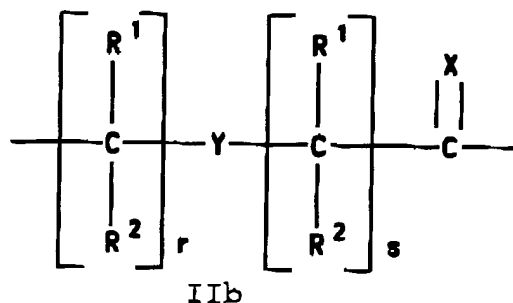
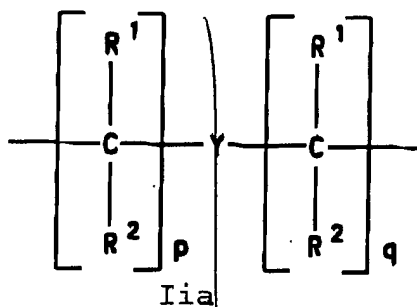
A and B are selected such that:

(a) A is a group of formula (IIa), (IIb) or (IIc) and B is N or  $R^3N^+$ ; or

(b) A is a group of formula (IIId) and B is CH;

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*B cont*

where:

X is O, S, Se, NR<sup>3</sup>, CH<sub>2</sub> or C(CH<sub>3</sub>)<sub>2</sub>;

Y is a single bond, O, S or NR<sup>4</sup>;

p and q independently are zero or an integer from 1 to 5;

r and s independently are zero or an integer from 1 to 5;

R<sup>1</sup> and R<sup>2</sup> independently are hydrogen, (C<sub>1</sub>-C<sub>4</sub>)alkyl, hydroxy-substituted (C<sub>1</sub>-C<sub>4</sub>)alkyl, alkoxy-substituted (C<sub>1</sub>-C<sub>4</sub>)alkyl, alkylthio-substituted (C<sub>1</sub>-C<sub>4</sub>)alkyl, hydroxy, alkoxy, alkylthio, amino, halogen or a conjugate;

C is (CR<sup>6</sup>R<sup>7</sup>)<sub>y</sub>;

D is (CR<sup>6</sup>R<sup>7</sup>)<sub>z</sub>; wherein:

R<sup>6</sup> and R<sup>7</sup> independently are hydrogen, a side chain of a naturally occurring alpha amino acid, (C<sub>2</sub>-C<sub>6</sub>);

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alkyl, aryl, aralkyl, heteroaryl, hydroxy, (C<sub>1</sub>-C<sub>6</sub>) alkoxy, (C<sub>1</sub>-C<sub>6</sub>) alkylthio, a conjugate, NR<sup>3</sup>R<sup>4</sup> and SR<sup>5</sup> or R<sup>6</sup> and R<sup>7</sup> taken together complete an alicyclic or heterocyclic system;

R<sup>3</sup> and R<sup>4</sup> independently are hydrogen, a conjugate, (C<sub>1</sub>-C<sub>4</sub>)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C<sub>1</sub>-C<sub>4</sub>)alkyl, hydroxy, alkoxy, alkylthio or amino; and

R<sup>5</sup> is hydrogen, a conjugate, (C<sub>1</sub>-C<sub>6</sub>)alkyl, hydroxy-, alkoxy-, or alkylthio- substituted (C<sub>1</sub>-C<sub>6</sub>)alkyl;

each of y and z is zero or an integer from 1 to 10, the sum y + z being greater than 2 but not more than 10;

E independently is COOH, CSOH, SOOH, SO<sub>2</sub>OH or an activated or protected derivative thereof;

F independently is NHR<sup>3</sup> or NPgR<sup>3</sup>, where Pg is an amino protecting group;

wherein:

F comprises a conjugate selected from a terpene, a cell receptor binding molecule, a crosslinking agent, a water soluble vitamin, a lipid soluble vitamin, a porphyrin, or an alkylator; or

at least one of A and L comprises a conjugate selected from a reporter enzyme, a reporter molecule, a steroid, a carbohydrate, a terpene, a peptide, a protein, a phospholipid, a cell receptor binding molecule, a